

SEQUENCE LISTING

(1) GENERAL INFORMATION:

- (i) APPLICANT: Landry W., Donald
- (ii) TITLE OF INVENTION: ANTI-COCAINE CATALYTIC ANTIBODY
- (iii) NUMBER OF SEQUENCES: 90
- (iv) CORRESPONDENCE ADDRESS:
- (A) ADDRESSEE: Cooper and Dunham LLP
 - (B) STREET: 1185 Avenue of the Americas
 - (C) CITY: New York
 - (D) STATE: New York
 - (E) COUNTRY: USA
 - (F) ZIP: 10036
- (v) COMPUTER READABLE FORM:
- (A) MEDIUM TYPE: Floppy disk
 - (B) COMPUTER: IBM PC compatible
 - (C) OPERATING SYSTEM: PC-DOS/MS-DOS
 - (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
- (vi) CURRENT APPLICATION DATA:
- (A) APPLICATION NUMBER: US
 - (B) FILING DATE: 24-JUN-1997
 - (C) CLASSIFICATION:
- (vii) ATTORNEY/AGENT INFORMATION:
- (A) NAME: White, John P.
 - (B) REGISTRATION NUMBER: 28,678
 - (C) REFERENCE/DOCKET NUMBER: 0575/51400-A-PCT
- (ix) TELECOMMUNICATION INFORMATION:
- (A) TELEPHONE: 212-278-0400
 - (B) TELEFAX: 212-391-0525

(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 109 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: protein
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:
- | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Val | Val | Thr | Gln | Glu | Ser | Ala | Leu | Thr | Thr | Trp | Pro | Gly | Glu | Thr | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Val | Thr | Leu | Thr | Cys | Arg | Ser | Ser | Thr | Gly | Thr | Ile | Thr | Thr | Ser | Asn | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Tyr | Ala | Asn | Trp | Val | Gln | Glu | Lys | Pro | Asp | His | Leu | Phe | Ser | Gly | Leu | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| Ile | Gly | Ile | Asn | Asn | Asn | Arg | Pro | Pro | Gly | Val | Pro | Ala | Arg | Phe | Ser | |
| | | 50 | | | | 55 | | | | | 60 | | | | | |
| Gly | Ser | Leu | Ile | Gly | Asp | Lys | Ala | Val | Leu | Thr | Ile | Thr | Gly | Ala | Gln | |
| | | 65 | | | | 70 | | | | 75 | | | | 80 | | |

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Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His
85 90 95

Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu Gly
100 105

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 109 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Arg Pro Gly Glu Thr
1 5 10 15
Val Thr Leu Thr Cys Arg Ser Ser Ala Gly Thr Ile Thr Thr Ser Asn
20 25 30
Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu
35 40 45
Ile Gly Val Asn Asn Asn Arg Pro Pro Gly Val Pro Ala Arg Phe Ser
50 55 60
Gly Ser Leu Ile Gly Asp Thr Ala Ala Leu Thr Ile Thr Gly Ala Gln
65 70 75 80
Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His
85 90 95
Trp Val Phe Gly Gly Thr Lys Leu Thr Val Leu Gly
100 105

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 109 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Ala Val Val Thr Gln Glu Ser Ala Leu Thr Thr Ser Pro Gly Glu Thr
1 5 10 15
Val Thr Leu Thr Cys Arg Ser Ser Thr Gly Thr Ile Thr Ser Asp Asn
20 25 30
Tyr Ala Asn Trp Val Gln Glu Lys Pro Asp His Leu Phe Ser Gly Leu
35 40 45

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Ile Gly Val Asn Asn Tyr Arg Pro Pro Gly Val Pro Ala Arg Phe Ser
 50 55 60
 Gly Ser Leu Thr Gly Asp Lys Ala Val Leu Thr Ile Thr Gly Ala Gln
 65 70 75 80
 Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Tyr Ser Asn His
 85 90 95
 Trp Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 100 105

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 109 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Ala Val Val Thr Gln Glu Ser Ala Leu Thr Arg Ala Pro Gly Glu Thr
 1 5 10 15
 Val Thr Leu Thr Cys Arg Ser Ser Ser Gly Thr Ile Thr Ala Asn Asn
 20 25 30
 Tyr Gly Ser Trp Val Gln Glu Lys Pro Asp His Leu Phe Thr Gly Leu
 35 40 45
 Ile Gly Val Ser Asn Asn Arg Gly Pro Gly Val Pro Ala Arg Phe Ser
 50 55 60
 Gly Ser Leu Ile Gly Asp Lys Ala Val Leu Thr Ile Thr Gly Gly Gln
 65 70 75 80
 Thr Glu Asp Glu Ala Ile Tyr Phe Cys Ala Leu Trp Asn Ser Asn His
 85 90 95
 Phe Val Phe Gly Gly Gly Thr Lys Leu Thr Val Leu Gly
 100 105

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 113 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Asp Ile Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly

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1           5           10           15
Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg
      20           25           30
Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser
      35           40           45
Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ser Ser Gly Val Ser
      50           55           60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
      65           70           75           80
Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe
      85           90           95
Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
      100          105          110

Arg

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(2) INFORMATION FOR SEQ ID NO:6:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 113 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

```

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly
1           5           10           15
Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg
      20           25           30
Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser
      35           40           45
Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser
      50           55           60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
      65           70           75           80
Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe
      85           90           95
Glu Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
      100          105          110

Arg

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(2) INFORMATION FOR SEQ ID NO:7:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 113 amino acids
 - (B) TYPE: amino acid

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- (C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

```

Asp Met Val Met Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly
 1             5             10             15
Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Arg Ser Leu Leu Tyr Arg
      20             25             30
Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Arg Ser
      35             40             45
Pro Gln Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser
      50             55             60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
      65             70             75             80
Ser Arg Val Lys Ala Glu Asp Val Gly Val Tyr Tyr Cys Gln His Phe
      85             90             95
Val Asp Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
      100            105            110
Arg

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(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 113 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

```

Asp Ile Val Ile Thr Gln Asp Glu Leu Ser Asn Pro Val Thr Ser Gly
 1             5             10             15
Glu Ser Val Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu Tyr Glu
      20             25             30
Asp Gly Lys Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser
      35             40             45
Pro His Leu Leu Ile Tyr Leu Met Ser Thr Arg Ala Ser Gly Val Ser
      50             55             60

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Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Glu Ile
 65 70 75 80
 Ser Arg Val Lys Ala Glu Asp Val Gly Ala Tyr Tyr Cys Gln Gln Phe
 85 90 95
 Val Glu Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Arg
 100 105 110
 Arg

(2) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 114 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Glu Leu Val Met Thr Gln Ser Pro Leu Thr Leu Ser Val Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Tyr Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Phe Phe Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Lys Asp Phe Thr Leu Lys Glu
 65 70 75 80
 Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Leu Tyr Tyr Cys Val Gln
 85 90 95
 Gly Tyr Thr Phe Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu
 100 105 110
 Lys Arg

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

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Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1          5          10          15
Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp
          20          25          30
Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
          35          40          45
Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu
 50          55          60
Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe
65          70          75          80
Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys
          85          90          95
Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu
          100          105          110
Val Thr Val Ser Ala
          115

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(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

```

Asp Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1          5          10          15
Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Asn Ser Ile Thr Ser Asp
          20          25          30
Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
          35          40          45
Met Gly Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu
 50          55          60
Ile Ser Arg Ile Ser Ile Thr Arg Asp Thr Ser Lys Asn Gln Phe Phe
65          70          75          80
Leu Gln Leu Asp Ser Val Thr Ala Glu Asp Thr Ala Thr Tyr Tyr Cys
          85          90          95
Val Arg Tyr His Tyr Tyr Gly Ser Ala Tyr Trp Gly Gln Gly Thr Leu
          100          105          110
Val Thr Val Ser Ala

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(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

[illegible]

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 117 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Asp	Val	Gln	Leu	Gln	Glu	Ser	Gly	Pro	Glu	Leu	Val	Lys	Pro	Ser	Gln
1				5					10					15	
Ser	Leu	Ser	Leu	Thr	Cys	Thr	Val	Thr	Gly	Tyr	Ser	Ile	Thr	Ser	Asp
			20					25					30		
Tyr	Ala	Trp	Asn	Trp	Ile	Arg	Gln	Phe	Pro	Gly	Asn	Arg	Leu	Glu	Trp
		35					40					45			
Met	Gly	Tyr	Ile	Arg	Tyr	Ser	Gly	Ile	Thr	Arg	Tyr	Asn	Pro	Ser	Leu

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50		55		60
Lys Ser Arg Ile Ser	Ile Thr Arg Asp Thr	Ser Lys Asn Lys Phe Phe		
65	70	75	80	
Leu Gln Leu Asn Ser Val Thr Thr	Glu Asp Thr Ala Thr Tyr Tyr Cys			
	85	90	95	
Val Arg Ile His Tyr Tyr Gly Tyr	Gly Asn Trp Gly Gln Gly Thr Thr			
	100	105	110	
Leu Thr Gly Leu Pro				
	115			

(2) INFORMATION FOR SEQ ID NO:14:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 116 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Asp Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Gly Ala	
1	15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Pro Phe Thr Asp Tyr	
20	30
Asn Met Tyr Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile	
35	45
Gly Tyr Ile Asp Pro Ser Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe	
50	60
Lys Gly Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Phe	
65	75
Met His Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys	
85	95
Ala Arg Gly Gly Gly Leu Phe Ala Tyr Trp Gly Gln Gly Thr Leu Val	
100	110
Thr Val Ser Glu	
115	

(2) INFORMATION FOR SEQ ID NO:15:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 116 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Glu Ile His Leu Gln Glu Ser Gly Glu Leu Val Lys Pro Gly Ala Ser
 1 5 10 15
 Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Ser Asp Tyr
 20 25 30
 Asn Met Tyr Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
 35 40 45
 Gly Tyr Ile Asp Pro His Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe
 50 55 60
 Lys Gly Arg Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Phe
 65 70 75 80
 Met His Leu Asn Val Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ala Arg Gly Gly Gly Leu Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val
 100 105 110
 Thr Val Ser Ala
 115

(2) INFORMATION FOR SEQ ID NO:16:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 115 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Glu Val Gln Leu Gln Glu Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ser Phe Asp Tyr Asn
 20 25 30
 Met Tyr Trp Val Lys Gln Asn His Gly Glu Ser Leu Glu Trp Ile Ala
 35 40 45
 Tyr Ile Asp Pro Ser Asn Gly Asp Thr Arg Tyr Asn Gln Lys Phe Gln
 50 55 60
 Gly Lys Ala Thr Val Thr Leu Asp Lys Ser Ser Ser Thr Ala Phe Met
 65 70 75 80
 His Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ala
 85 90 95
 Arg Gly Gly Gly Leu Phe Ala Phe Trp Gly Gln Gly Thr Leu Val Thr

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100

105

110

Val Ser Ala
115

(2) INFORMATION FOR SEQ ID NO:17:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 116 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

```

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Met Pro Gly Ala Ser
1          5          10          15
Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp His Trp
20          25          30
Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly
35          40          45
Thr Ile Asp Leu Ser Asp Thr Tyr Thr Gly Tyr Asn Gln Asn Phe Lys
50          55          60
Gly Arg Ala Thr Leu Thr Leu Asp Glu Ser Ser Asn Thr Ala Tyr Met
65          70          75          80
Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys Ser
85          90          95
Arg Arg Gly Tyr Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr Thr Leu
100         105         110
Thr Val Ser Ser
115

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(2) INFORMATION FOR SEQ ID NO:18:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 115 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Val Gln Leu Leu Glu Ser Gly Ala Glu Leu Val Lys Pro Gly Ala Ser

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1	5	10	15
Val Glu Leu Ser	Cys Arg Thr Ser	Gly Tyr Thr Phe Thr	Thr Tyr Tyr
20		25	30
Ile Tyr Trp Val	Lys Gln Arg Pro	Gly Gln Gly Leu Glu	Trp Ile Gly
35	40	45	
Gly Met Asn Pro	Gly Asn Gly Val	Thr Tyr Phe Asn Glu	Lys Phe Lys
50	55	60	
Asn Arg Ala Thr	Leu Thr Val Asp	Arg Ser Ser Ser	Ile Ala Tyr Met
65	70	75	80
Gln Leu Ser Ser	Leu Thr Ser Glu	Asp Ser Ala Val	Tyr Tyr Cys Thr
85	90	95	
Arg Val Gly Asn	Leu Phe Ala Tyr	Trp Gly Arg Gly	Thr Leu Val Thr
100	105	110	
Val Ser Ala			
115			

(2) INFORMATION FOR SEQ ID NO:19:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Arg Ser Ser Arg Ser	Leu Leu Tyr Arg	Asp Gly Lys Thr Tyr	Leu Asn
1	5	10	15

(2) INFORMATION FOR SEQ ID NO:20:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Leu Met Ser Thr Arg	Ser Ser
1	5

(2) INFORMATION FOR SEQ ID NO:21:

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 9 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Gln His Phe Val Asp Tyr Pro Phe Thr
1 5

(2) INFORMATION FOR SEQ ID NO:22:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Arg Ser Ser Lys Ser Leu Leu Tyr Glu Asp Gly Lys Thr Tyr Leu Asn
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:23:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Leu Met Ser Thr Arg Ala Ser
1 5

(2) INFORMATION FOR SEQ ID NO:24:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Gln His Phe Glu Asp Tyr Pro Phe Thr
1 5

(2) INFORMATION FOR SEQ ID NO:25:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Arg Ser Ser Lys Ser Leu Tyr Glu Asp Gly Lys Thr Tyr Leu Asn
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:26:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 7 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Leu Met Ser Thr Arg Ala Ser
1 5

(2) INFORMATION FOR SEQ ID NO:27:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Gln Gln Phe Val Glu Tyr Pro Phe Thr
1 5

(2) INFORMATION FOR SEQ ID NO:28:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

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(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Arg Ser Ser Arg Ser Leu Leu Tyr Arg Asp Gly Lys Thr Tyr Leu Asn
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:29:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Leu Met Ser Thr Arg Ala Ser
1 5

(2) INFORMATION FOR SEQ ID NO:30:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Gln His Phe Glu Asp Tyr Pro Phe Thr
1 5

(2) INFORMATION FOR SEQ ID NO:31:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

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Arg Ser Ser Thr Gly Thr Ile Thr Thr Ser Asn Tyr Ala Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:32:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Ile Asn Asn Asn Arg Pro Pro
1 5

(2) INFORMATION FOR SEQ ID NO:33:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Ala Leu Trp Tyr Ser Asn His Trp Val
1 5

(2) INFORMATION FOR SEQ ID NO:34:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Arg Ser Ser Ala Gly Thr Ile Thr Thr Ser Asn Tyr Ala Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:35:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

100290 2220000

-85-

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Val Asn Asn Asn Arg Pro Pro
1 5

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Ala Leu Trp Tyr Ser Asn His Trp Val
1 5

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

Arg Ser Ser Thr Gly Thr Ile Thr Ser Asp Asn Tyr Ala Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:48:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Val Asn Asn Tyr Arg Pro Pro
1 5

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single

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(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Ala Leu Trp Tyr Ser Asn His Trp Val
1 5

(2) INFORMATION FOR SEQ ID NO:40:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Arg Ser Ser Ser Gly Thr Ile Thr Ala Asn Asn Tyr Gly Ser
1 5 10

(2) INFORMATION FOR SEQ ID NO:41:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Val Ser Asn Asn Arg Gly Pro
1 5

(2) INFORMATION FOR SEQ ID NO:42:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Ala Leu Trp Asn Ser Asn His Phe Val
1 5

(2) INFORMATION FOR SEQ ID NO:43:

0340727-088001

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- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Lys Ser Ser Gln Ser Leu Leu Tyr Ser Asp Gly Lys Thr Tyr Leu Asn
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:44:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Leu Val Ser Lys Leu Asp Ser
1 5

(2) INFORMATION FOR SEQ ID NO:45:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

Val Gln Gly Tyr Thr Phe Pro Leu Thr
1 5

(2) INFORMATION FOR SEQ ID NO:46:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

09440737.000001

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Ser Asp Tyr Ala Trp Thr
1 5

(2) INFORMATION FOR SEQ ID NO:47:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:48:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Tyr His Tyr Tyr Gly Ser Ala Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:49:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Ser Asp Tyr Ala Trp Thr
1 5

(2) INFORMATION FOR SEQ ID NO:50:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 16 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

0940727.032011

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Tyr His Tyr Tyr Gly Ser Ala Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 6 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Ser Asp Tyr Ala Trp Asn
1 5

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Tyr Ile Arg Tyr Ser Gly Ile Thr Arg Tyr Asn Glu Ser Leu Lys Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:

0940727.083801

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- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Ile His Tyr Tyr Gly Tyr Gly Asn
1 5

(2) INFORMATION FOR SEQ ID NO:55:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 6 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Ser Asp Tyr Ala Trp Thr
1 5

(2) INFORMATION FOR SEQ ID NO:55:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Tyr Ile Arg His Ile Tyr Gly Thr Arg Tyr Asn Pro Ser Leu Ile Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:57:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 8 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

0040727.00000

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Tyr His Tyr Tyr Gly Ser Ala Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:58:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Asp Tyr Asn Met Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:59:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

Tyr Ile Asp Pro Ser Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe Lys
1 5 10 15

Gly

(2) INFORMATION FOR SEQ ID NO:60:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

Gly Gly Gly Leu Phe Ala Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:61:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids

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- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

Asp Tyr Asn Met Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:62:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 17 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Tyr Ile Asp Pro His Asn Gly Gly Ile Phe Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

(2) INFORMATION FOR SEQ ID NO:63:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 7 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Gly Gly Gly Leu Phe Ala Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:64:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 5 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

09340727.1088001

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Asp Tyr Asn Met Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:65:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Tyr Ile Asp Pro Ser Asn Gly Asp Thr Phe Tyr Asn Gln Lys Phe Gln
1 5 10 15
Gly

(2) INFORMATION FOR SEQ ID NO:66:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Gly Gly Gly Leu Phe Ala Phe
1 5

(2) INFORMATION FOR SEQ ID NO:67:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:

Thr Tyr Tyr Ile Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:68:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Met

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 7 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

(2) INFORMATION FOR SEQ ID NO:70:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Thr Ile Asp Leu Ser Asp Thr Tyr Thr Gly Tyr Asn Gln Asn Phe Lys
1 5 10 15

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Gly

(2) INFORMATION FOR SEQ ID NO:72:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

Arg Gly Phe Asp Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:73:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 14 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

Arg Ser Ser Xaa Gly Thr Ile Thr Xaa Xaa Asn Tyr Ala Asn
1 5 10

(2) INFORMATION FOR SEQ ID NO:74:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

Xaa Asn Asn Tyr Arg Pro Pro
1 5

(2) INFORMATION FOR SEQ ID NO:75:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 9 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

09940727.00200

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

Ala Leu Trp Tyr Ser Asn His Trp Val
1 5

(2) INFORMATION FOR SEQ ID NO:76:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 5 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:

Asp Tyr Asn Met Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:77:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 17 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:

Tyr Ile Asp Pro Xaa Asn Gly Xaa Xaa Phe Tyr Asn Gln Lys Phe Xaa
1 5 10 15

Gly

(2) INFORMATION FOR SEQ ID NO:78:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 7 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:

Gly Gly Gly Leu Phe Ala Xaa

09940727.082001

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1

5

(2) INFORMATION FOR SEQ ID NO:79:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:

Arg	Ser	Ser	Xaa	Ser	Leu	Leu	Tyr	Xaa	Asp	Gly	Lys	Thr	Tyr	Leu	Asn
1				5					10					15	

(2) INFORMATION FOR SEQ ID NO:80:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 7 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

Leu	Met	Ser	Thr	Arg	Xaa	Ser
1				5		

(2) INFORMATION FOR SEQ ID NO:81:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 9 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

Gln	Xaa	Phe	Xaa	Xaa	Tyr	Pro	Phe	Thr
1				5				

(2) INFORMATION FOR SEQ ID NO:82:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 6 amino acids
 - (B) TYPE: amino acid

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- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Ser Asp Tyr Ala Trp Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:83:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 16 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

Tyr Ile Arg Xaa Xaa Xaa Xaa Thr Arg Tyr Asn Pro Ser Leu Xaa Ser
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:84:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 8 amino acids
 - (B) TYPE: amino acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Xaa His Tyr Tyr Gly Xaa Xaa Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:85:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 330 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

0040727-000004

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TCTGGACCTG AGCTGGTGAA GCCTGGGGCT TCACTGAAGG TATCCTGTAA GGCTTCTGGT	60
TATTCAITCA CTGACTACAA TATGTACTGG GTGAAGCAGA ACCATGGAGA GAGCCTTGAA	120
TGGATTGCAT ATATTGATCC TTCCAATGGT GATACTTTCT ACAACCAGAA ATTCCAGGGC	180
AAGGCCACAG TGACTCTTGA CAAGTCCTCC AGTACAGCCT TCATGCATCT CAACAGCCTG	240
ACATCTGAGG ACTCTGCAGT CTATTACTGT GCAAGAGGGG GGGGCCTGTT TGCTTTCTGG	300
GGGCAAGGGA CTCTGGTCAC TGTCTCTGCA	330

(2) INFORMATION FOR SEQ ID NO:88:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 368 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

GATATGGTGA TGACGCAGA CGAACTCTCC AATCCTGTCA CTCTGGAGA ATCAGTTTCC	60
ATCTCTGCA GGTCTAGTAA GAGTCTCTTA TATGAGGATG GGAAGACATA CTTGAATTGG	120
TTTCTGCAGA GACCAGGACA ATCTCCTCAC CTCTGATCT ATTTGATGTC CACCCGTGCA	180
TCAGGAGTCT CAGACCGGTT TAGTGGCAGT GGGTCAGGAA CAGATTTCAC CCGTAAAATC	240
AGTAGAGTGA AGGCTGAGGA TGTGGGTGCG TATTACTGTC AACAAATTGT AGAGTATCCA	300
TTACGTTTCG GCTCGGGGAC AAAGTTGGAA ATAAGACGGG TTGATGCCGC ACCAACTGTA	360
TCCATCTT	368

(2) INFORMATION FOR SEQ ID NO:87:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 366 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

GATGTGCAGC TTCAGGAGTC GGGACCTGGC CTGSGAAAC CTCTCAGTC TCTGTCCCTC	60
ACCTGCAGTC TCACTGGCAA TTCAATCACC AGTGATTATG CCTGGACCTG GATCCGGCAG	120
TTTCCAGGAA ACAAACTGGA GTGGATGGGC TACATAAGGC ACATTATGCG CACTAGGTAC	180
AACCTTTCTC TCATAAGTCG AATCTCTATC ACTCGAGACA CGTCCAAGAA CCAAGTTCTTC	240
CTGCAGTTGG ATTCTGTGAC TGCTGAGGAC ACAGCCACAT ATTATTGTGT AAGATATCAT	300
TACTACGGTT CGGCTTACTG GGGCCAAGGG ACTCTGGTCA CTGTCTCTGC AGCCAAAACG	360

366

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 339 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:

GATATTGTGA	TGACCCAGGA	TGAACCTCTC	AATCCTGTCA	CTTCGGAGA	ATCAGTTTCC	60
ATCTCCTGCA	GGTCTAGTAG	GAGTCTCTTA	TATAGGGATG	GGAAGACATA	CTTGAAATTGG	120
TTTCTGCAGA	GACCAGGACG	ATCTCCTCAA	CTCCTGATCT	ATTTGATGTC	CACCCGTTCA	180
TCAGGAGTCT	CAGACCGGTT	TAGTGGCAGT	GGGTCAGGAA	CAGATTTTAC	CCTGGAAATC	240
AGAGAGATGA	AGGCTGAGGA	TGTGGGTGTG	TATTACTGTC	AACACTTTGT	AGACTATCCA	300
TTCACTGTCG	GCTCGGGGAC	AAAGTTGGAG	ATAAAACCGG			339

(2) INFORMATION FOR SEQ ID NO:89:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 366 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

GACGTCGCACTG	TGCAGGAGATC	GGGACCTGGC	CTGGTGAAAC	CTTCTCAGTC	TCTGTCCCTC	60
ACCTGCACTG	TCACTGGCAA	TTCAATCACC	AGTGATTATG	CCTGGACCCTG	GATCCGGCAG	120
TTTCCAGGAA	ACAAACTGGA	GTGGATGGGC	TACATAAGGC	ACATTTATGG	CACTAGGTAC	180
AACCCCTTCTC	TCATAAGTCG	AATCTCTATC	ACTCGAGACA	CGTCCAAGAA	CCAGTTCTTC	240
CTGCAGTTGG	ATTCTGTGAC	TGCTGAGGAC	ACAGCCACAT	ATTATTGTGT	AAGATATCAT	300
TACTACGGTT	CGGCTTACTG	GGGCCAAGGG	ACTCTGGTCA	CTGTCTCTGC	AGCCAAACG	360
ACACCC						366

(2) INFORMATION FOR SEQ ID NO:90:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 368 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

GATATGGTGA	TGACGCAAGA	TGAACTCTCC	AATCCTGTCA	CTTCTGGAGA	ATCAGTTTCC	60
ATCTCCTGCA	GGTCTAGTAG	GAGTCTCCTA	TATAGGGATG	GGAAGACATA	CTTGAATTGG	120
TTTCTGCAGA	GACCAGGACG	ATCTCCTCAA	CTCCTGATCT	ATTTGATGTC	CACCCGTGCA	180
TCAGGAGTCT	CAGACCGGTT	TAGTGGCAGT	GGGTCAGGAA	CAGATTTTAC	CCTGGAAATC	240
AGTAGAGTGA	AGGCTGAGGA	TGTGGGTGTG	TATTACTTTC	AACACTTTGA	AGACTATCCA	300
TTCACGTTTC	GCTCGGGGAC	AAAATTGGAG	ATAAAACGGG	CTGATGCTGC	ACCAACTGTA	360
TCCATCTT						368

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